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SAFETY DIGEST

November 1968

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UNITED STATES ARMY MATERIEL COMMAND
WASHINGTON, D.C. 20315

AMC Pamphlet 385-86 November 1968

The Safety Digest is an AMC Pamphlet prepared by the Safety Office Headquarters, U. S. Army Materiel Command. Its purpose is to disseminate information which can materially influence and improve safety programs at all Command establishments.

Articles are included to supplement technical knowledge as well as practical knowledge gained through experience. They provide a basis for the further refinement of safety measures already incorporated in operating procedures and process layout. To achieve maximum effectiveness, the Safety Digest should be given widespread circulation at each AMC establishment.

Articles appearing in the Safety Digest are unclassified and are not copyrighted. They may be reproduced as desired in order to bring pertinent accident prevention information to the attention of all employees. The Army Materiel Command Safety Digest should be given a credit line when articles are extracted.

Unclassified material believed to be of interest or benefit to other establishments is welcome for publication in the Safety Digest. Please send articles for review to: U. S. Army Materiel Command Field Safety Agency, Charlestown, Indiana. If possible, include pictures, charts, drawings, and illustrations that clarify and heighten interest in your presentation.

(AMCSF)

*FOR THE COMMANDER:

CLARENCE J. LANG
Major General, USA
Chief of Staff

OFFICIAL:

WM. A. GREGORY
Colonel, GS
Chief, Administrative Office

Special Distribution

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U.S. ARMY MATERIEL COMMAND SAFETY AWARDS FOR FY 1968

Group 1

Major Subordinate Commands

	Point Score
Award of Honor	
U.S. Army Weapons Command	93.84
Awards of Merit	
U.S. Army Electronics Command	91.68
U.S. Army Tank-Automotive Command	91.11
Commendations for Safety	
U.S. Army Missile Command	
U.S. Army Munitions Command	

Group 2

AMC Installations and Activities Reporting Directly to Headquarters, U.S. Army Materiel Command (other than those indicated in Group 3)

Award of Honor	
U.S. Army Coating and Chemical Laboratory	96.00
Awards of Merit	
U.S. Army Satellite Communications Agency	95.50
U.S. Army Automatic Data Field Systems Command	95.00
U.S. Army Logistics Management Center	92.00
U.S. Army Management Engineer Training Agency	92.00
U.S. Army Cincinnati Procurement Agency	92.00
Commendations for Safety	
U.S. Army Materials & Mechanics Research Center	
Harry Diamond Laboratories	
U.S. Army Ballistic Research Laboratories	
U.S. Army Los Angeles Procurement Agency	
U.S. Army Nuclear Defense Laboratory	

Group 3

Depots Reporting Directly to Headquarters, U.S. Army Materiel Command

Award of Honor

	Point Score
Charleston Army Depot	94.75

Awards of Merit

Tobyhanna Army Depot	92.90
New Cumberland Army Depot	92.73
Navajo Army Depot	91.74
Fort Wingate Army Depot	89.12

Commendations for Safety

Savanna Army Depot
Anniston Army Depot
Tooele Army Depot
Red River Army Depot
U.S. Army Maintenance Board
U.S. Army Petroleum Center
U.S. Army Equipment Authorization Review Center

Group 4

Installations and Activities of the U.S. Army Munitions Command

Award of Honor

Frankford Arsenal	89.50

Awards of Merit

Lone Star Army Ammunition Plant	84.80
Radford Army Ammunition Plant	84.40
Newport Army Ammunition Plant	84.35
Badger Army Ammunition Plant	83.00

Commendations for Safety

Scranton Army Ammunition Plant
Twin Cities Army Ammunition Plant
Indiana Army Ammunition Plant
Sunflower Army Ammunition Plant

Group 5

Installations and Activities of the U.S. Army Weapons Command

	Point Score
Award of Honor	
Rock Island Arsenal	91.80
Award of Merit	
Watervliet Arsenal	88.80

Group 6

Installations and Activities of the U.S. Army Missile Command

Award of Honor	
Thiokol Chemical Corporation, Huntsville Division	93.15
Awards of Merit	
Rohm and Haas Company, Redstone Arsenal Research Div.	85.90
Headquarters Operations, U.S. Army MICOM	85.80

Group 7

Installations and Activities of the U.S. Army Test and Evaluation Command

Award of Honor	
Jefferson Proving Ground	86.88
Awards of Merit	
White Sands Missile Range	78.40
U.S. Army Artillery Board	76.51
Aberdeen Proving Ground	76.41

Group 8

Installations and Activities of the U.S. Army Aviation Systems Command, U.S. Army Mobility Equipment Command, and U.S. Army Tank-Automotive Command

Awards of Merit	
Lima Army Modification Center	96.50
U.S. Army Aviation Materiel Laboratories	78.75

Group 9

Installations and Activities of the U.S. Army Electronics Command

	Point Score
Award of Honor	
Procurement & Production Directorate	95.54
Award of Merit	
Research & Development Directorate and Laboratories	85.96
Commendations for Safety	
Electronics Research & Development Support Activity Electronics Support Command	

* * * *

SAVANNA ARMY DEPOT RECEIVES AMC AWARD OF HONOR

Savanna Army Depot received the AMC Award of Honor for Safety for its FY 1967 achievement in preventing accidents. Brigadier General Victor Cary, Headquarters, AMC, presented the award plaque to Colonel W. B. Harding, Savanna Army Depot Commander. Ron Unangst, Depot Safety Director, is shown at the right. Savanna Army Depot won AMC Awards of Merit for the three years that preceded its winning the Award of Honor.

AMC SYSTEMS SAFETY ENGINEERING COURSE PLANNED

■ The AMC Safety School is developing a course on Systems Safety Engineering Management and Analysis for addition to its curriculum in FY 1970.

■ Present plans are for the course to be of two weeks duration. The instructors will place emphasis on systems safety engineering, management and analysis as applicable to the Army Materiel Command and its installations and activities.

■ The subject matter will include the following:

Introduction to Systems Safety Engineering, Management and Analysis.
Types of Hazards to Which Systems Safety can be Applied.
Customary Systems Safety Requirements.
Definitions and Scope.
Systems Safety Tasks.
Implementation of Systems Safety Engineering, to include:
- Systems Management and Safety
- Systems Safety Engineering Requirements
- Systems Safety Engineering Analysis
- Design Control Process
- Systems Safety Engineering Management

Hazards Introduced by Man as the User.
Hazards Introduced by Environment.
Hazards Introduced by the Machine.
Introduction to Analysis.
Probability Theory and Application.
Distribution and Sampling.
Fault Tree Construction.
Set Theory and Boolean Algebra.
Quantification of Fault Trees.

■ More complete information on this course will be made available in the AMC safety publications, including the AMC Safety School brochure for FY 1970.

YOU CAN DO SOMETHING ABOUT SAFETY

How often after an accident have you heard somebody remark, "I knew that wasn't safe. They should have done something about it before this happened."

The person who says this usually stops **short** with the remark. He rarely admits, "I neglected to do **anything** to remove the hazard."

These two remarks, one frequently expressed and one unsaid, can help us prevent additional accidents and injuries. All that is needed is more action and less talk and excuse making.

You can do something effective to prevent accidents from happening in your plant, your shop or your office. Top supervision and the safety professionals have no mysterious prowess that gives them a monopoly on preventing accidents. They are busy providing management and leadership. The people who work on the lines, in the shops and in the offices are the ones who must keep themselves safe.

It is not at all difficult to achieve a high level of safety, if you consistently devote a modest amount of time, thought and effort to it. Here are a few suggestions that will help you protect yourself and your fellow workers:

1. Pay attention to the matter of avoiding accidents. Attention by the individual involved can prevent him from falling, getting caught between objects or exposing parts of his body to moving parts of machines. The alert person sees and avoids the hazards he encounters. It is the ignored or unrecognized hazard that claims a victim.

2. Correct accident-breeding situations around you. You probably have the know-how, authority and responsibility for doing this. Take the matter of housekeeping at your job site. You are expected to keep your area neat. When you fail, the clutter sets up an accident situation. You are at fault if your untidiness is the cause of an accident.

3. If you see a seemingly hazardous situation or operation you cannot or should not try to correct yourself, call it to the attention of your supervisor or a safety representative. They may not have seen it. It is a rare supervisor or safety man who does not welcome any serious information or question about the job.

4. If your fellow worker performs an unsafe act, tell him about it before he is injured. Do not wait until the accident occurs and then report, "Joe didn't use the guard on his machine." It is better to say, "Joe, the sight of fresh blood makes me sick. Why don't you use that guard, save yourself a finger and keep me from being upset."

5. Express your ideas at safety meetings. Your questions and comments there will get the attention of your fellow workers and the supervisor who is conducting the session. By speaking up you may secure prompt action.

6. Offer specific suggestions rather than general complaints and ideas. Your incentive award program provides one channel for these. Those who evaluate your suggestion may not be familiar with your work area. They will need something quite precise on which to base recommendations and actions. Do not expect your every safety suggestion or idea to be adopted or lead to a change. Some may turn out to be impracticable. Perhaps they may have been tried already and found to be unsuccessful or undesirable for various good reasons.

7. Make a habit of using safety equipment. If safety shoes, glasses and gloves are provided, use them whenever you are exposed, not just when the foreman or inspector is expected.

8. Take safety home with you. You are valuable to the organization, and your supervisor wants you back. You are more likely to be injured off the job than on it. You can protect yourself off the job as well as on it, by following the same basic rules. Try to be safe. Do the little things. Fasten your seat belt; keep your attention on your driving; keep alert for hazards you may encounter everywhere.

9. Remember you can also do something about off-the-job hazards you recognize. A modest, thoughtful effort may surprise you at how effective you may be in your capacity as a private citizen. Two individuals at an Army installation recently became concerned about congested traffic on a public highway. They wrote a letter to their state highway department, offering two suggestions for improvement. Within three weeks one of the suggestions, a warning sign for a dangerous intersection, had been adopted and the sign had been erected.

■ One thing these suggestions have in common is simplicity. Simple practices, based on common sense, will prevent most accidents. When an accident does occur it is usually possible to identify unsafe acts and conditions that reflect a failure to use simple, common sense. You alone must practice these if you are to be as safe as possible.

CHECKLISTS RELATIVE TO RAILROAD OPERATIONS

■ During the past fourteen months AMC installations have reported seven fatalities due to railroad operations. These were:

□ 1. Handbrakes were improperly set on railroad boxcars which left siding, went down track and were struck head-on by an oncoming engine. Engineer was killed.

□ 2. Non-Army motor vehicle struck train. Military driver was killed.

□ 3. Employee fell on track while getting off moving locomotive. He was run over by a gondola.

□ 4. A military person fell in between moving railroad cars and was run over.

□ 5. Employee was crushed between boxcar and motor vehicle van.

□ 6. Two employees killed when their non-Army motor vehicle was struck by a locomotive on post.

● In each of these cases, an element of personnel failure was involved. Everyone of the accidents could have been avoided if the personnel involved observed elementary rules of safety. In view of the increased number of fatalities, an immediate review of railroad activities would be appropriate. In this connection, Joliet Army Ammunition Plant forwarded the following checklists which should prove helpful to those AMC elements having railroad operations:

NAME_____

BADGE #_____

CHECK LIST: DIESEL SWITCHMAN

1. Safety Equipment

   a) Properly clothed for conditions?
   b) Does clothing properly fit according to Safety Standards?
   c) Is safety equipment worn?

2. Communications

   a) Hand Signals - distinct and clear
   b) Meaning of whistle signals
   c) Meaning of bell signals

3. Boarding and Alighting

   a) Proper, safe method of mounting and dismounting: Box-cars, tank cars, flat cars, etc. Engines - footboards.
   b) Are rules pertaining to boarding and alighting moving equipment obeyed?
   c) Cautions: clearances, speed, footing, handhold

4. Hand Brakes

   a) Follow rules for use.
   b) Method of setting.
   c) Method of release.

5. Coupling and Uncoupling

   a) Is procedure safe and efficient?
   b) Does the procedure follow rules in S.O.P.?
   c) What violation, if any?
   d) What corrective action or comments made? On the spot? Follow up?

6. Crossings

   a) Flag - Does Switchman conduct himself safely and properly? Any confusion?
   b) Are general rules of crossing followed?

7. Switching

   a) Does Diesel Switchman throw switches safely and properly?
   b) Does Diesel Switchman assume clearance and safe passage for train?

8. General Knowledge

   a) Does the Diesel Switchman know the Area? Spots?
   b) Does the Diesel Switchman follow the S.O.P.?
   c) Does the Diesel Switchman know his job?
   d) Does the Diesel Switchman move efficiently without running?

9. General Observations

   a) Does the Diesel Switchman follow orders? Instructions?
      1) How well?
   b) Does the Diesel Switchman move with confidence?

   c) Does the Diesel Switchman respond and adopt quickly to diverse situations?
   d) Is the Diesel Switchman personable?
      1) What are his best qualities?

9. (Cont'd)

e) Does he appear satisfied with his job and the operation? Constructive criticism
f) Is there respect for the Diesel Conductor and his decisions?

10. Rating

✔ a) Quality of work
✔ b) Quantity of work
✔ c) Team work
✔ d) Reliability
✔ e) Job knowledge
✔ f) Adaptability

Remarks:

* * * *

NAME_____

BADGE #_____

CHECK LIST: DIESEL ENGINEER

1. Safety Equipment

a) Properly clothed for conditions?
b) Is safety equipment worn?

2. Communications

a) Understand and follow the crews directions?
b) Use whistle signals for better communication and safety
c) Use bell in accordance with S.O.P.

3. Speed Limits

a) Follow perscribed speed limits
b) Adapts to climatic conditions

4. Uses care and discretion in moving the engine to prevent damage, injury, collision and derailment, and is reasonable and prudent in all movement.

5. Crossing
a) Abides by the rules of the S.O.P. pertaining to crossings.

6. Promptly follows instructions of the Conductor and Yardmaster.

7. Performs consciously the engine check before the beginning of the shift and at the end of the shift. Makes out the Daily Inspection Report of any defects in equipment of hazards to the safe operation of the railroad.

8. Assure that engine lights are properly used at all times.

9. General Knowledge

   a) Mechanics of operation
   b) Stopping distances (versus) speeds
   c) Knowledge of areas and track conditions
   d) Defensive operator

10. Rating

   a) Quality of work
   b) Quantity of work
   c) Teamwork
   d) Reliability
   e) Job knowledge

Remarks:

* * * *

NAME_____

BADGE #_____

CHECK LIST: DIESEL CONDUCTOR

1. Safety Equipment

   a) Properly clothed for conditions?
   b) Does clothing properly fit according to safety standards?
   c) Is safety equipment worn?
   d) Does crew wear safety clothing?

2. Communications

   a) Hand signals - Are they distinct, clear and understandable?

2. (Cont'd)

   b) Are the rules for safe signalling followed?
   c) Are the meanings of bell and whistle signals used and understood?

3. Boarding and Alighting

   a) Proper and safe methods of boarding and alighting; box cars, tank cars, flat cars, engines and engine foot boards.
   b) Obey rules pertaining to boarding and alighting moving equipment.
   c) Alert to close clearances, speed, footings, hand holds, etc.

4. Hand Brakes

   a) Hand brakes rules for use.
   b) Methods of setting.
   c) Methods of releasing.
   d) Crew observance of hand brake rules.
   e) Required compliance of rules.

5. Coupling and Uncoupling

   a) Is procedure safe and efficient?
   b) Is procedure in agreement with the Standard Operating Procedure?
      1) What violation, if any?
      2) What corrective action or comments made? On the spot? Follow up?

6. Crossings

   a) Flag crossings; are the rules for flagging followed and is the method of flagging proper?
   b) Are the rules for whistle crossings followed?
   c) Are the rules for switching on, or near a crossing followed?

7. Switching

   a) Are switches handled properly?
   b) Is right of way checked for safe passage?
   c) Does crew handle switching operation safely?
   d) Is the method of operation or movement efficient and safe?

8. General Knowledge

   a) Are the "Areas" and "Spots" known thoroughly?
   b) Is the Standard Operating Procedure followed?

8. (Cont'd)

c) Is there a sound understanding of railroading?
d) Does he know his duties and responsibilities?

9. Conductor Qualities
   a) Does he assume the responsibility of the crews performance
      1) Safe operation
      2) Efficient operation
   b) Does he communicate promptly with the Yardmaster when there is any interference with the safe and efficient operation.
   c) Does he comply with Dispatches quickly?
   d) Does he instruct members of the crew in the safe and proper methods of job performance?
   e) Is the record of switches accurate, legible, understandable and complete?

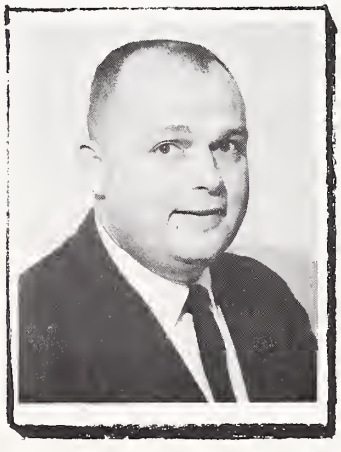
10. General Observations
   a) Does he appear satisfied with position and overall operation? Constructive comments.
   b) Is there confidence in each crew member's ability?

☐ Remarks:

MECOM SAFETY DIRECTOR APPOINTED

The U. S. Army Mobility Equipment Command Safety Director, Mr. Vernon A. Strahm, joined USAMECOM on 14 July 1968 as Safety Director and Chief, Safety Division. His former assignment was as Chief of the Safety Office of the Sacramento District, U. A. Army Corps of Engineers, beginning in December of 1965. Before joining the Sacramento District, Mr. Strahm worked for the Corps' Missouri River Division, first as a structural engineer and later as Safety Engineer.

Mr. Strahm was named Chairman of the Federal Safety Council for 1968. He is a member of the American Society of Safety Engrs., the Executive Committee of the National Safety Council (Heavy Construction Sect.), and Board of U. S. Civil Service Examiners. He is also active in Boy Scouts of America and Little League.



APG PRESENTS ''DRUGS AND THE DRIVER''

*John Q. Watkins, Safety Assistant
Aberdeen Proving Ground

Traffic experts say: "One of the underlying contributing causes of many traffic accidents is the often overlooked influence that medication has on drivers." The average driver is not aware in many cases that medications taken to bring relief from pain and tensions are in fact drugs. He does not, moreover, know of the dangers of operating a vehicle while taking medicine. Even drugs that are available without prescription, such as antihistamines, can be dangerous to the driver.

The Aberdeen Proving Ground Safety Division felt the need to inform civilian and military drivers of the dangers of driving while using medication. A program entitled, "Drugs and the Driver", was developed to educate all personnel. Command approval for the one-hour program was obtained and attendance of personnel was made mandatory. To publicize the program, notices were placed in the Daily Bulletin, three days prior to the date of presentation. A full page flyer was also distributed.

The film, "Post Mortem", dramatically introduced the subject. It showed how a young family man with a cold became a highway fatality because his senses were dulled by cold pills.

Captain R. A. Nosal, M. C., of Kirk Army Hospital, an APG tenant activity, next described the functions of the parts of the brain, the effects of drugs on the brain, and discussed the commonly used drugs. He told how depressants, stimulants, salicylates and antihistamines may affect parts or all of the brain and nervous system. In addition each of two drugs taken together may compound the action of the other, an effect known as synergism. A driver's senses and reactions may be seriously affected by the medicine he takes.

Captain Nosal's presentation was followed by a talk on Drugs and the Driver by Trooper First Class Joe Vitek of the Maryland State Police.

At the time this was written the one-hour program, "Drugs and the Driver", had been presented four times to 5,000 civilian employees of APG and its tenant activities. The 6,800 military personnel of the U. S. Army Ordnance Center and School will receive the same program.

Motor vehicle accidents continue to be an accident problem at Aberdeen Proving Ground. It is hoped that the "Drugs and the Driver" program will eliminate one potential accident cause.

* Mr. Watkins was a Member of FY 1968 Safety Career Management Intern Tng Class at U. S. FSA.

GASOLINE EXPLOSION HAZARDS IN FORD SEDANS

1. Purpose and Scope. The purpose of this circular is to recommend immediate control measures for a gasoline explosion hazard which may occur in the trunks of certain vehicles such as Ford sedans. It is applicable to all Corps of Engineers Installations and Activities.

2. In 1968 Ford Fairlane sedans the top of the gas tank serves as the floor of the trunk. Two flexible hoses carry overflow gasoline or vent the gas tank into a metal tube that runs through the trunk before passing to the outside. These hoses are located at the rear of the trunk next to the gas tank fill pipe. Both the fill pipe and the vent system are exposed to damage by articles carried in the trunk. Other Ford Company cars (Falcon, Comet, Fairlane and Ford) of previous model years may also have vulnerable gasoline tank connections.

3. Leaking gasoline could cause an explosive mixture which could be ignited by any spark. A possible source of ignition is the transmit relay found in some trunk mounted mobile radios. The gasoline fumes could enter the trunk in the following ways:

a. A cut in the vent hose.

b. A blow on the fill pipe of sufficient strength to break the connection at the gas tank.

c. A cut or rupture of the gas tank top (trunk floor).

d. A blow on the nipples which connect the hoses to the gas tank.

e. Corrosion which weakens the gas tank.

f. Pulling the hoses loose from the tank or from the flexible tube.

4. This office has requested the Ford Motor Company to recommend a fix to guard against these hazards. Pending receipt of these recommendations, the following precautions should be taken:

a. Caution all persons who operate Ford sedans to check for the conditions listed in paragraph 3 above each time the trunk is used. (All Ford cars from 1963 to the present model year should be checked).

b. Guards should be provided for the gas tank fill pipe, the two vents or overflow tubes and the metal tube which extends along the inside lip of the trunk to prevent damage by equipment

being carried in the trunk or being placed in or taken out of the trunk. The metal tubing should be adequately secured to prevent movement which might result in cracking.

c. If sharp heavy objects are to be carried in the trunk, the gas tank top (trunk floor) should be protected. As a minimum, a 3/8 inch thick piece of plywood, or similar guard, cut to fit over the top of the gas tank would give protection from most loads.

d. Establish procedures to check the condition of the gas tank and the gas tank connections during regular periodic maintenance.

e. Obtain information from the manufacturer on hazards of operating their model radio in a flammable atmosphere and recommended precautions.

Office of the Chief of Engineers
Department of the Army, Wash., D.C.

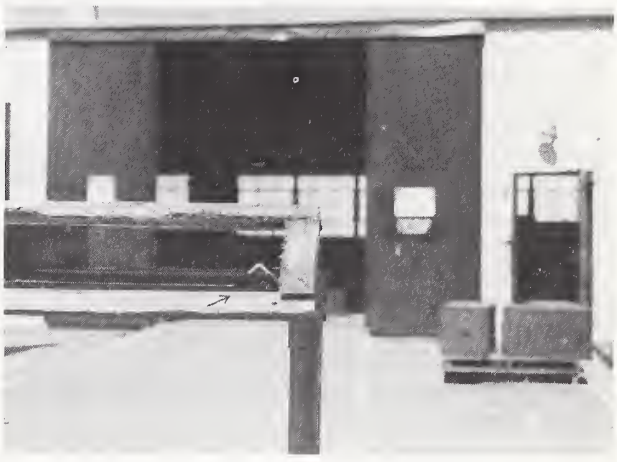
SAFETY SHOE USE BRINGS CLUB MEMBERSHIP

James Douglas (center), an employee in the Sharpe Army Depot's Warehousing Division, is shown as he accepted a life-time membership in the Golden Shoe Club from Col. Howard James, Depot Commander. Mr. Douglas' supervisor, Alfred Azevedo, looks on. Mr. Douglas was admitted into the club because the wearing of safety-capped shoes prevented his being seriously injured when a forklift ran over his foot earlier this year. He is the sixth depot employee to receive membership in the Golden Shoe Club, a national organization dedicated to foot safety. The plaque held by Colonel James lists the other members.

PALLET SUPPORT SET SAFETY FEATURE PROVIDED

● Sharpe Army Depot recently received 2,000 support sets, stacking materials, handling pallet for storage and handling use. An additional 5,000 are on order, but not yet received. Stock number FSN 3990-542-4771 has been assigned for the 40" by 48" size, and FSN 3990-542-4769 for the 40" by 60" size.

● Previous sets with the same stock number were equipped with two metal "V" shaped devices to provide greater stability when moving more than one pallet with forklifts (Photo 1)



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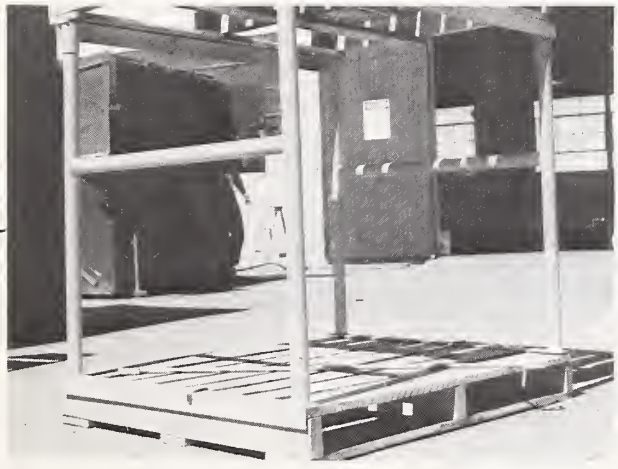

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3

● This feature was omitted from specifications contained in the current contract (Photo 2). Since there was no safety feature provided, Sharpe Army Depot personnel submitted an EIR to correct this deficiency. Photo 3 shows the improvement to the support set.

PLEASE DON'T SHOOT THE JANITOR

Two proof technicians were conducting lot acceptance test firings of temperature conditioned 40 mm multiprojectile cartridges. The rounds were fired from a launcher rigidly mounted inside a range. The firing was accomplished remotely by means of a lanyard that extended into an adjoining gun room. The cartridges were stored in a cold-conditioning box in another workroom.

One technician was assigned the tasks of removing the ammunition from the cold box, taking it to the launcher, loading it, and firing it from the gun room. The second technician worked in an instrumentation room recording data.

The test firing proceeded until early in the afternoon. The technician who was doing the firing became aware of an earache, caused by a cold. While on his way to the workroom cold box for the next cartridge he stopped to secure some cotton for his ear. At the same time the technician in the range instrument room walked out to speak to a machinist who had delivered test rounds for another program. Between them the two technicians left their test range unguarded for about three minutes.

During this brief time a contractor employed janitor entered the unwatched range and began to sweep the floor. His presence was not suspected by the range technicians, who had not given him permission to enter the range.

After securing the cotton for his ear, the first technician obtained a cartridge from the cold box. He returned to the range and inserted the cartridge in the launcher. He left the range, closed the door behind him, and fired the weapon. He then re-entered the range and unloaded the launcher. At that point he noticed the janitor walking up range holding his left shoulder.

• Examination revealed that the janitor had been hit in the left shoulder and upper arm by at least seven pellets of the No. 4 buckshot from the cartridge being tested. It was estimated that he would be away from work for 18 days.

The range contained metal cabinets and racks in addition to range equipment. Apparently the janitor had been behind a rack and was sweeping across the range at the moment the launcher was fired.

• Vigorous action was taken to prevent a recurrence of the accident:

▶ 1. Housekeeping was corrected by the removal of all extraneous material from the range.

▶ 2. Proof technicians were made responsible for the cleaning of ranges.

▶ 3. Review and discussion of range standing operating procedures were made a part of monthly safety meetings.

▶ 4. Range doors were required to be locked when the range was unattended, with the key retained in the possession of a proof technician.

▶ 5. Disciplinary action was initiated against one technician for disregarding established safety procedures contained in the SOP. The second technician (supervisor) was disciplined for failure to establish and maintain proper safeguards and control over casuals entering the range area under his control.

▶ 6. The janitor was reassigned to work in non-hazardous areas only.

* * * *

FAST DRAW CONTEST DRAWS BLOOD

The traffic control gate was quiet after the rush hour traffic ended, and the two soldiers who manned it were bored. They decided a quick draw contest might help them pass the time. They removed the magazines from their .45 caliber pistols and practiced quick drawing on each other.

The pastime was interrupted by the approach of more traffic. They inserted the magazines in their pistols and proceeded to

direct traffic on each side of the guardhouse.

When the traffic had passed both turned back into the guardhouse and stood facing each other, about four feet apart. Their thoughts returned to their game. Without a word being uttered, each attempted a lightning draw.

One soldier spun around, and the other realized he had shot him. (Apparently a round had been chambered when the clip was returned to the pistol.) The uninjured soldier called the Military Police desk and an ambulance was dispatched.

It was found that the bullet had entered high in the right chest, punctured the right upper lung lobe, and exited the body high on the right back. Minimum muscle injury and no bone damage was incurred. The time lost was expected to be 14 days.

The accident report contained a statement that the incident reflected flagrant disregard for the installation's established safety practices and written procedures for the handling of weapons. An investigating officer was appointed and a criminal investigation case was initiated.

Corrective measures by the Military Police company included emphasis on training in the procedures and operations required while Military Policemen are on duty. Prior to guardmount the individuals were briefed on the safe handling of weapons. Review of SOP's pertaining to Military Police operations was required.

The incident was used as a training example, with emphasis being given to the consequences to be expected when illegal use was made of weapons.

* * * *

ARCING CAUSES WORKER TO JUMP

Laboratory tests had indicated the dielectric, acid and interfacial tension of the oil in a transformer were good. Because there was a slight discoloration and a possible trace of impurity, it was determined that the oil should be filtered. A subcontractor who had the necessary special equipment was employed to perform this service.

Since the electric power received by the installation was metered through the transformer, deenergizing it would have interrupted operations. This appeared to present no problem to the subcontractor, whose normal method of operation was to filter the oil while the transformer was energized. Hose connections were made for movement of the oil from the transformer to filtering, drying and degassing tanks in a truck van. The truck was

outside the fenced substation area about 30 feet from the transformer. Another hose was put in place to move the filtered oil back to the transformer.

The filtering operation was controlled by a subcontractor employee at an instrument panel inside the fully-enclosed van. When everything was ready pumps were started and the filtering began. The operation proceeded for about ten minutes. There was then a loud report, and flashes of flame and arcing. The arcing occurred within the transformer and pressure was vented through the lid gasket.

The first thought of the operator was for the safety of his co-worker. He turned away from the control panel and jumped to the ground without slowing to use the steps provided there for descent. He then realized the arcing was continuing and that he had not turned off his instruments. He hastily climbed back into the van, turned off the instruments and again leaped to the ground.

On the second jump he landed on an uneven surface and fractured his right heel bone. His employer expected him to be disabled for 90 days.

The co-worker, about whom the injured man had been concerned, escaped injury.

Examination of the interior of the transformer indicated that arcing occurred between terminals after the pumping to the filter had lowered the oil level.

■ The contractor took the following actions to prevent accidents incident to work on the electrical power system:

○ 1. The contractor gave fresh instructions to his personnel and to subcontractor personnel on safety requirements in performing work on electrical utilities.

○ 2. The necessity for providing instruction to subcontractors before they began work was stressed.

○ 3. Instructions were given that all electrical equipment would be deenergized and the controls would be locked out before any work was performed.

THE LADDER WAS TOO SHORT

Two contractor electricians were assigned the task of installing a floodlight on a roof. When the time came for one of the workers to mount the roof, he found its edge was 11 feet above the ground. An eight-foot step ladder was available for him to climb. The second worker held the ladder while the electrician climbed up, stood on the top step and scrambled up onto the roof.

When the job was finished, the worker started down. He moved feet first to the edge of the roof. He then attempted to get a footing on the top step of the ladder three feet below the eave. He lost his balance while attempting this and fell to the ground.

He landed hard and sustained a fracture in his left ankle. A week passed before he could return for a work assignment.

All employees in the contractor's engineering department were contacted through safety meetings. The accident was used to emphasize to them the importance of using the proper equipment for the specific job they were performing.

Supervision increased the frequency of its checks on personnel to make certain the correct equipment was being used.

The two workers involved in the accident received reprimands.

* * * *

TYPEWRITER DESK SEIZES WOMAN

When she began to work at the Army installation the young woman adopted the standard solution to the handbag storage problem. She placed the bag out of sight in the convenient space in the typewriter compartment.

On this morning she was four minutes late and in a hurry to make ready for the day's work. She went straight to the desk where she usually stored her handbag, opened the compartment door and pulled out the typewriter leaf.

Usually the machine on the leaf provided an adequate counterbalance for the strong spring-action mechanism. Today the typewriter was missing. When the leaf was withdrawn full length from the compartment, the spring caused it to rise suddenly.

● The woman was unprepared for the sudden movement and she had no time to remove her right hand from an unsafe position on the leaf. Her hand was caught between the leaf and the forward edge of the desk. Laceration and injury to a middle finger tendon caused her to be away from work for nine days.

All office personnel were instructed in the proper method for raising a typewriter desk leaf. Emphasis was given to the safe placement of the hands on the front edge of the leaf and the application of sufficient pressure to compensate for the sudden activation of the spring mechanism, regardless of whether or not there was a typewriter on the leaf.

* * * * *

NEW CUMBERLAND ARMY DEPOT RECEIVES NSC AWARD OF HONOR

The New Cumberland Army Depot has received the National Safety Council Award of Honor for working 5,373,767 man-hours without a disabling injury. The record extended from 10 June 1967 to 15 May 1968. Mr. Gardner R. Whitney, left, district director of the National Safety Council, presented the award plaque to Colonel John W. Irving, the Depot's Commander. Mr. Norman Smith, the Depot's Safety Director, is shown at the right.

DRIVE A SAFE VEHICLE

Oscar M. Hawkins, Assistant Plant Engineer
Thiokol Chemical Corporation, Huntsville Division
U. S. Army Missile Command

Vehicle safety, like any good safety program, must become a state of mind to be effective. Each vehicle operator must recognize the hazards of motor vehicle operation and must develop a subconscious "Check List" that becomes a part of each operating cycle.

Consider yourself. Undoubtedly you think of yourself as a safe driver. Yet chances are high that you will get into your car, or a company vehicle, and start off on your mission without so much as a glance at your tires. Even worse, the odds are very high that you will never try your brakes until you come to a point where you must stop. So you have been lucky so far! When will your luck end? If one of those uninspected tires should suddenly blow out while you were driving at the speed of 60 miles per hour you could not stop your car in less than 160 feet, even with the best of brakes and ideal road conditions. With your car swerving out of control due to the blowout, your chances of missing oncoming traffic or some stationary object along the road during that 160 feet it takes to stop are about equal to playing Russian roulette with three chambers loaded.

This becomes more frightening when you consider these statistics:

● 1. Driving your car into a stationary object at 20 miles per hour is equivalent to driving it off the roof of a one-story building.

● 2. Driving your car into a stationary object at 65 miles per hour is equivalent to driving it off the roof of a ten-story building.

● 3. Hitting a moving vehicle head-on, the impact velocity is the sum of the velocities of the two cars involved. At 65 miles per hour, a head-on collision with an oncoming vehicle traveling at the same speed would be equivalent to driving your car off the roof of approximately a 20-story building.

▶ Safety check of a vehicle becomes more urgent as the vehicle ages and mileage increases. Their age and the wear and tear vehicles have seen over the years make it most urgent that

every precaution is taken to avoid failure of safety equipment, or costly breakdown due to negligence of the operator.

A program has been started to thoroughly examine and recondition our company-operated vehicles on a quarterly basis. With this program we hope to eliminate many of the unsafe conditions such as slick tires, bad brakes or improper lighting. Only with the help of the operator, can be avoid costly repairs due to improper lubrication, neglected minor damage and other defects.

Conscientious support of inspection procedures by the drivers will do much to prolong the life of vehicles and the duration of safety records for operation of the vehicles without personal injuries.

* * * *

DEFENSIVE DRIVING BEING TAUGHT AT GRANITE CITY ARMY DEPOT

Defensive driving training for all licensed Army vehicle operators is giving a "big lift" to both on-post and off-post safety at Granite City Army Depot. Over 600 operators are receiving the training in two-hour sessions on four successive days. The course is taught by Miss M. Theresa Fiedler, of the Motor Pool Division, who was trained in the subject at the Depot and at the National Safety Council. In the photo above, Colonel Charles E. Hoskin, III, Commanding Officer, is shown presenting an NSC course completion card to Willard Messer. Miss Fiedler stands beside her pupil.

SUNFLOWER'S SAFETY THEATER IS UNIQUE

R. B. Stedman, Planet Editor
Hercules Inc.
Sunflower Army Ammunition Plant

One of the most unique developments in American industry was unveiled at Sunflower Army Ammunition Plant a few months ago when the doors of the Hercules Safety Theater opened for the first time. Few, if any other industrial plants, have a comparable facility. Because of the eminent success of this undertaking, many others may someday follow suit.

This new concept was a complete departure from the time-honored, although rather cumbersome, method of holding safety meetings for employees in each work area. Not only was a central location obviously better for displays, lighting and visual aid equipment, but it provided a pleasant change of pace for the worker who was confined to a limited area each day. That the logic of this plan was correct has been demonstrated repeatedly by the attentive, cooperative attitude of the employees and the effective communication of the safety message to all areas of Sunflower Army Ammunition Plant.

The Bus Station was chosen as the site of the new theater. Before the doors could be opened a number of alterations had to be completed. The theater area was partitioned off, and an entrance foyer and a stage were constructed. Two microphones and several speakers were installed to provide acoustics. Spotlights were installed to illuminate new displays.

The seating capacity is 275. Air conditioning assures comfort for each meeting regardless of the weather outside.

A photo gallery of Sunflower department heads greets the visitor in the entrance foyer. Inside the auditorium, prominently displayed on the posts and walls, are placards bearing thought-provoking messages on safety attitudes and human relations. The Mighty Mouse rocket, Sunflower's product, is displayed for close inspection.

The safety programs were changed quite dramatically to keep pace with the new setting that had been created. A project was initiated to seek out and obtain the best available films on all aspects of safety. A number of top film presentations have been offered, thanks to the courtesy of such other industry leaders as Bell Telephone, Honda Motorcycle Co., Union Pacific Railroad, State Farm Insurance, and Employers Mutuals of Wausau, as well as the U. S. Bureau of Mines, Army, Navy, Air Force and other government agencies.

The centralized location of the Safety Theater has made it possible for guest speakers to appear at each meeting throughout the entire month. The old method of conducting safety meetings on all shifts in each plant area precluded most guest appearances.

The first such meeting was held during the opening month of the new theater. Dr. Lunetta Pearce, Sunflower Medical Director, spoke to each group attending and supervised a first aid class in which 1,022 employees came to the stage to personally try mouth-to-mouth resuscitation techniques. Subsequently monthly programs have featured J. B. Farmer of the Gauge Lab (safe and proper handling of gauges and instruments); Mike Kozak, Jim Gromer and J. B. Farmer (pride in workmanship; why quality control and safety are important); John Kasberger, Assistant Lawrence, Kansas, Fire Chief (flammable liquid safety); Sam Zollicker, Engineering Manager (deluge fire control systems); and many departmental representatives who discussed problems unique to specific plant areas.

Prominent guests have also appeared at the Safety Theater on occasions when their schedules brought them to Sunflower. Among those who have addressed employees at the theater have been Gilbert Cain, Director of Safety for Hercules Incorporated; Richard Tucker, Director of Operations, Chemical Propulsion Division; and AMC Field Safety Agency personnel. Sunflower Plant Manager, Joe Talley, has also been a speaker on frequent occasions.

The Safety Theater has been the setting for numerous special ceremonies. Turtle Club, Wise Owl Club and Golden Shoe Club inductees have been honored, and safety awards to the plant have been presented. A permanent gallery of photographs of these activities is part of the display in the auditorium.

The multipurpose safety center has become somewhat of a "town hall" for Sunflower. The Training Department has conducted a number of special programs here, and several departments have used the facilities for special meetings or classes.

After 16 months of operation, Safety Theater attendance totaled 50,573. The 3,196 on hand for the February 1968 meetings was the biggest single month ever. It would be impossible to estimate accurately the total number of visitors.

Neal Finch, a member of the Hercules Safety Department staff since the start of the current operation in 1965, is the Safety Theater Director.

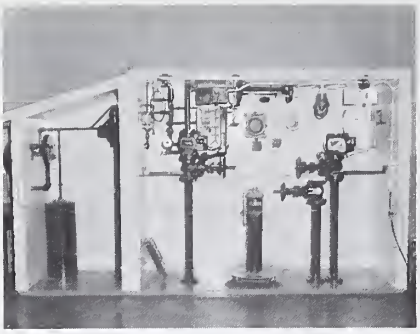


Photo 1 - An exact replica of the deluge system in use in Sunflower buildings was built for the Safety Theater and explained at each monthly meeting by Sam Zollicker, Plant Engineering Manager, for Hercules Inc.

Photo 2 - The latest techniques of mouth-to-mouth resuscitation is practiced on "Resussi-Annie" in the Sunflower Safety Theater. Dr. Lunetta Pearce, Hercules Medical Dir, supervised the training.

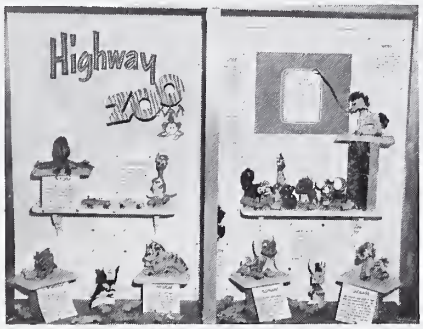


Photo 3 - Dangerous driving habits are graphically illustrated by the stuffed animals in the "Highway Zoo". On-and off-plant safety have top billing at the monthly meetings in the Sunflower Safety Theater.

Photo 4 - A photo gallery of Wise Owl, Golden Shoe and Turtle Club members occupies a prominent place on the Safety Theater wall. Award ceremonies are conducted at safety meetings.

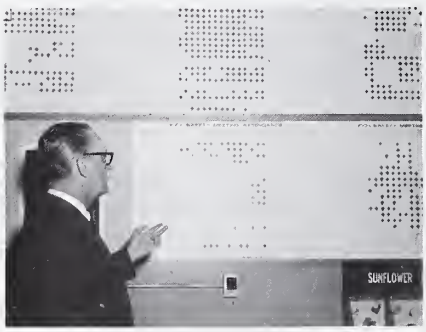


Photo 5 - Safety Theater Director, Neal Finch, maintains attendance records for each group on these boards in the Safety Theater. Each cross represents 100 per cent attendance by a group for the month.

RULES TAUGHT WITH SAFETY SCOREBOARD

Murle L. Sydow, Training Supervisor
Mason & Hanger - Silas Mason Co., Inc.
Cornhusker Army Ammunition Plant

The average employee wants to make a favorable impression with his supervisor and with his company. He wants to do the right thing at the right time. Hidden and obscure rules can make his job more difficult.

Often an action that seems logical and reasonable to the man who sits at a desk and makes the regulation is never adequately explained to the employees who must live with the new rule.

Most plants have a table of penalties devised to cover all situations from parking too near a lane of traffic to smoking in explosives areas. The typewritten sheets of restrictions and penalties flow from the administration area and swamp the employees in a sea of DON'T's. After a while even the most conscientious worker may become callous to the ever mounting stack of nebulous rules and regulations.

The Training Department of the Cornhusker Army Ammunition Plant decided to toss a life preserver of sorts to the penalty-swamped workers.

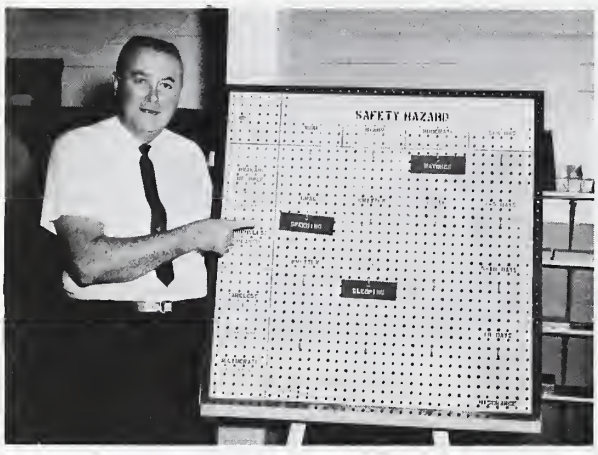
It found that every safety violation could be cataloged by two different standards: (1) The actual physical seriousness of the safety violation, and (2) the human characteristics leading to the violation. Each of these two standards could be divided into four subtopics. Parking in a wrong area may not be a safety hazard at all; carrying matches into an explosives area would be a serious hazard. Therefore, the four divisions of seriousness of a safety violation are: None, Minor, Moderate and Serious.

The human characteristics leading to a safety violation are more difficult to divide into four areas. This would vary from a person being unaware of the rule to another person who deliberately violates a known safety practice. A person parking in an unmarked NO PARKING area should not receive the same penalty as the person who carries matches into a restricted area. The four divisions of the human characteristics were placed along the left of the pegboard.

The resulting graph was painted with shades of red with appropriate penalties stenciled onto each of the resulting 16 squares. The upper left square represented a violation that constituted no safety hazard and the person was unaware of the rule. The penalty would be an oral reprimand. The lower right hand square would represent the maximum penalty of dismissal. In this case the safety hazard would be serious, and the person would have committed a deliberate violation.

Hooks were hung on the Safety Scoreboard so that violations would be attached. A series of cards of the more common violations was made. Now a single violation would be cataloged according to the two standards and placed in its correct perspective on the Scoreboard.

More arguments are won by positive thinking than by negative statements. To really put across the idea of obeying Cornhusker Army Ammunition Plant rules and regulations, it would be better to present the case in a more constructive way.



Mr. Murle L. Sydow is shown using the Safety Scoreboard described in his article.

With this theme, presentations were begun in the various work areas. The penalties of a few of the more common violations were mentioned and explained by using the Safety Scoreboard. After half a dozen of these penalties were pointed out, the tone of the presentation changed to positive action. The difficulty in getting perfect agreement on any set of penalties was pointed out. One person will feel that a certain penalty is too severe; another person will feel that the same penalty is too lenient.

Rather than sit back and judge the penalties, it is better to study the violations and see the importance of each rule and regulation. The balance of each session was spent with explaining the seriousness of the violations, how each violation constituted a safety hazard, how the purpose of the many rules was to protect each employee while on the job. Penalties were still mentioned, but now they were given as incidentals. It was made clear that the main purpose of each rule and regulation was to make the job as safe as possible.

Groups of a hundred or more employees remained interested throughout the 45-minute training session. Their original attention was captured by the brightly colored Safety Scoreboard. Their attention was maintained because the Company was explaining the many rules and regulations that they had always considered just so much white collar interference.

The attitude toward Safety has improved. Now each rule and regulation has a more personal meaning.

* * * *

SIGNBOARDS ANNOUNCE SAFETY NEWS AT LOUISIANA ARMY AMMUNITION PLANT

The Remington Office Equipment Div., Sperry Rand Corp., operating contractor at the Louisiana Army Ammunition Plant works at keeping its personnel informed of the latest safety news. Signboards located at the main entrance of the installation and at the entrance of its Metal Parts Manufacturing Plant convey safety messages. These signs are very versatile in that they can be used to communicate many different type messages. Winners of various awards are publicized in this manner. Other effective uses are for promoting specific programs, messages from the General Manager, special greetings for guests, timely and appropriate safety messages or slogans, holiday messages, and announcements of special safety awards given to the plant. The sign shown in the photo compliments the AMC Safety Digest.

MOBILE BRIDGE RUNS DOWN TRUCK

Bridges are often the scenes of highway accidents in which vehicles strike some unyielding surface of the structure. An Army Materiel Command activity recently experienced the reverse of the conventional vehicle-bridge accident. One of its bridges ran down and smashed a small truck. The pictures on this page show the results.

A Mobile Assault Bridge was making a test run on a wet track, moving at about a 25 miles per hour speed. The truck driver came to a stop at the test track and then started to drive across. When he was out on the track the Mobile Assault Bridge driver saw him and tried to halt his heavy vehicle. He also steered to the right in an effort to avoid a collision.

The driver of the small truck failed to get it out of the way of the approaching heavy vehicle. The larger piece of equipment struck the truck broadside and came to rest on top of it, as shown in photo 1. A crane was needed to lift it off the crushed truck and its two occupants.

Photo 2 shows the truck after the Mobile Assault Bridge was lifted from it. The truck driver survived the experience, but his passenger died from multiple injuries.

Although this accident might be labeled unique, heavy and usually slow moving equipment, such as cranes, can become involved in an accident. A "speeding" road roller ran away at a depot a few years ago. Heavy equipment accidents frequently involve property damage only. All such accidents emphasize the need for constant attention to safety by supervisors and by the personnel whose duties bring them into close proximity with the big items.

* * * *

STRAIGHT TALK ON ARMY AIRCRAFT SAFETY

Colonel Warren R. Williams, Jr., recently retired after 30 years of service and three years as Director, U. S. Army Board for Aviation Accident Research (USABAAR). His statement on retiring, as published in the USABAAR Weekly Summary of Army Aircraft Accidents, merits the attention of every individual associated in any capacity with Army aviation activities.

"Although our loss due to accidents has significantly decreased since the establishment of USABAAR, the rising average cost of each accident and our continued discovery of new ways to better use organic aviation makes mandatory further decrease of the loss due to accidents. It is discouraging to read reports of accidents due to lack of knowledge of technical manuals and failure to adhere to regulations and established procedures. Even more discouraging is to read accident reports where corrective action for previous accidents has not been taken or enforced. All humans are subject to error, but we should not continue to make the same errors which experience has already shown as causes of accidents.

"It is customary for persons retiring after long service to leave some words of wisdom to those who follow. To all of you I would say accident prevention is synonymous with hard work. A good accident rate is the result of constant attention by everyone in the unit to detect and correct hazardous conditions before they result in accidents. An accident is normally the result of a failure on the part of someone to know his job and perform it properly."

THE CARE AND FEEDING OF BULLETIN BOARDS

Safety Office
Granite City Army Depot

● While you may be doing a good job with your bulletin boards, these are usually areas where more care and attention may be needed. Here are some suggestions. These are applicable to the posting of safety posters and other media received from the National Safety Council, other sources or those that are produced locally.

☆ 1. Safety posters should be changed as they are received. The ordinary safety poster should be left up for a period of no more than 30 days. The Safety Office should issue new posters every 30 days.

☆ 2. On occasion a safety poster may be left up only two or three weeks and then taken down before the new supply of posters is received. Psychologically this will cause curiosity on the part of the various employees. They will wonder about the empty board. New interest may be created. (Advertisers use a variation of this attention-getting device. They sometimes buy a large expanse of expensive white space to lure you into reading a tiny message.)

☆ 3. A poster may be particularly apt. When this occurs, the individual responsible for the bulletin board may want to select an approved area near the board, or near a certain operation, and post the poster on a more or less permanent basis. This should be encouraged by the Safety Office as long as it is done without violation of any regulation and does not create an untidy appearance.

☆ 4. Consideration should be given to retaining posters as they are removed and building a safety poster file within each branch or division. The individual responsible for the bulletin board may do this. It is surprising how often a situation will develop wherein a poster that has been issued at some previous time is ideal for use in again drawing attention to a specific situation.

☆ 5. While the bulletin boards are supposedly among the last thing many employees look at, they are frequently among the first thing many visitors and inspectors observe. There simply is not much truth in the statement that people do not look at bulletin boards. While they may not make a big show of it, there are not many things posted on the bulletin boards that escape the attention of the average employee.

REMOTE CONTROL- A MODERN DAY BLESSING

W. T. McCraw, Rocket Manufacturing Area Line Foreman
Radford Army Ammunition Plant

At Radford Army Ammunition Plant many types of propellants are manufactured, and safety is promoted plantwide. The rewards of a good safety program have been reaped many times and much of the credit goes to a policy of limited or minimum exposure of personnel to hazardous conditions. Every operation is constantly scrutinized for ways to reduce the personnel or explosive limits. Remote control has helped immensely in this struggle.

The large grain casting operation, located in the rocket manufacturing area of the plant, is a good example of the use of this policy. Here, casting liquid, composed of a high percentage of nitroglycerin, is added to a mold that has been preassembled and loaded with double base casting powder of a small granule size. The cast grain has a propellant weight of over eighteen hundred pounds, and this could be a very hazardous operation if not handled correctly. (Photo 1 shows a casting mold.)

Many precautions have been taken to prevent an accident at this operation. There are numerous warning signs posted throughout the building. The lead floor runs ten inches up the wall. A lead trench runs through the center of the casting bay, leading outside to a catch tank to catch and confine any casting liquid spill. The building lighting is indirect. A safety shower and an eyewash fountain are centrally located. Eye protection is on hand and its use is required at all times. Only nonsparking tools and equipment made of materials such as rubber, brass, beryllium, plastic, teflon and wood are allowed here, and they are arranged and stored in designated locations when not in use. Every piece of equipment is carefully inspected prior to use. Ground systems are attached during operations to prevent

electrostatic buildup. All hose connections are secured by double clamps on each side of the connection, tightened with a torque wrench to 30 inch pounds. In addition, a safety turnbuckle is attached between the hose connections as an added precaution against their separation. The operators are highly trained and a foreman is everpresent.

It has been ascertained in time past that no matter how safe an operation becomes, the unforeseen can and sometimes does happen. Where explosives are involved, this can spell disaster. Therefore, at the Radford Army Ammunition Plant, when and where possible, remote control is employed to protect personnel.

Through inert operations, prior to placing the remote facility in an operational status, it was determined that the large grain casting operation could be performed almost completely by remote control. The casting operation is performed by introducing controlled air pressure into a casting liquid desiccator and forcing the casting liquid through a delivery hose into the loaded mold. The mold must be weighed during the operation. The casting liquid must be bled from the bottom of the mold until all air bubbles are ejected. There must be a hold period under pressure to assure proper distribution of the casting liquid throughout the mold. The casting liquid head must be siphoned to attain a desired level in the mold.

To make this operation remote two maneuverable television cameras were located in the building. Through their employment the entire operation can be viewed from an underground control house, 100 yards away. Air operated, fail safe pinch valves were designed and installed to control the flow of casting liquid from the desiccator to the mold. Controls for the valves and the casting station were installed in the control house. With these installations remote casting, as outlined in the following synopsis, was made possible. (See Photo 1.)

The loaded mold is inspected and positioned on a monorail weighing beam. It is tare weighed and locked into place by safety latches. Red nutating lights located outside the building are turned on. The casting liquid delivery hose is carefully assembled between the casting liquid desiccator and the inlet of the mold. This hose is placed into the N. G. pinch valve which is then closed on the hose. The two bleed hoses coming out of the mold bottom plate are placed into the bleed pinch valves which are then closed on the bleed hose. The ends of the bleed hose are positioned into lined, sawdust filled catch pans with a hold down device attached to prevent their escaping. The air delivery hose is then assembled from the

casting station to the desiccator. The building is thoroughly checked to assure it is clear of all personnel. When assured of this, the casting crew evacuates the building and walks to the control house.

In the control house there are two television monitors, each with a set of controls with which the respective cameras can be maneuvered. Each set of controls is manned. (See Photo 2.) The air supply to the desiccator, which is always kept locked out except during the remote operation, is opened. When the desired air pressure is reached, the N. G. pinch valve is opened, allowing the casting liquid to flow into the mold. The action of all pinch valves is observed on the monitors. The scales are watched to ascertain that the casting liquid is going into the mold. The bleed pinch valves are opened. When a steady stream of casting liquid is obtained from each bleed hose, the bleed pinch valves are closed. The mold is carefully scanned by both cameras during the entire operation and if any unusual condition is noted, the operation is stopped immediately. At the end of the prescribed casting time a hold period under pressure is initiated. At the end of the hold period, the N. G. pinch valve is closed on the solvent delivery hose. The air pressure is released from the desiccator into a casting liquid vapor trap. The N. G. pinch valve is reopened, allowing the excess casting liquid head to return back into the desiccator, leaving the desired level inside the mold. The casting crew then returns to the casting building, disassembles the casting apparatus and cleans the building and equipment thoroughly.

● By making the operation remote the personnel were removed from exposure to a hazardous operation. This is only one example of many operations performed remotely at the Radford Army Ammunition Plant. An intensive effort is underway to make jobs safer, and remote control has been found to be "a modern day blessing".

Photo 1 - Two maneuverable television cameras (left center and near ceiling top right) make possible scanning of remotely controlled casting operations.

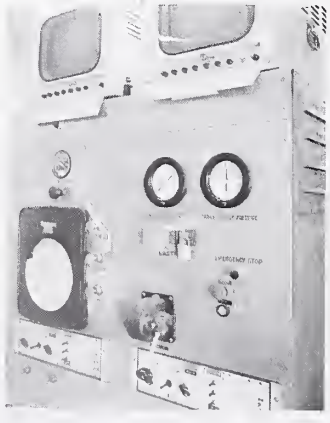


Photo 2 - Two television monitors and system safety lockouts are in an underground control house 100 yards away.

ALERT! SMOKING CROW IN AMMUNITION AREA!

Doyle L. Saxon
Management Engineering Division
Anniston Army Depot

■ Can you imagine calling the Provost Marshal at 7:00 A.M. and reporting that you had just seen a crow flying toward the ammunition area with a lighted cigar in his mouth? This I did, but not before I had established with my supervisor and other reputable persons the fact that I was awake and completely sober. Then midst a barrage of sympathetic remarks and questioning stares, I related the amusing incident which occurred on the road at a point where the road runs parallel to the ammunition area fence.

Someone had just thrown a lighted cigar butt out of a car window and the alert crow quickly scooped it up and departed as my car approached.

When the full impact of this amusing incident reached my mind, it was no longer funny.

The unthinking bird, with the cigar trailing smoke, departed in the direction of the ammunition area. While I do not know how far it is (as the crow flies) to the nearest ammunition storage, I do know that we have highly combustible and explosive material on the depot. Very likely, the indiscriminate scavenger soon found the cigar butt to be inedible or too hot to handle, and did not carry it very far. The fact remains that the area was surrounded by pine trees and broom sedge, both of which are hignly combustible. Chance and an early morning dew no doubt contributed to the fact that no fire occurred, but this should serve as a serious reminder to us all that a few hours difference, or a few miles distance could make a real tragedy out of a careless act.

So far this report tends to incriminate only the crow and the observer, but the real culprit is "anyone" who carelessly discards cigar and cigarette butts. There is NO safe way to violate a safety rule.

RESEARCH HELPS SOLVE PROBLEM

Robert R. Cavanaugh, Safety Officer
St. Louis Army Ammunition Plant

■ When you started to drive you were taught to slow down when it rained. At high speeds wet roads become slippery. Only in the last few years has it been learned when a wet pavement became slippery and why you had to slow down to be safe.

Researchers found that at high speeds on wet pavement your automobile ceased to behave like a land-based vehicle. It left the pavement and began to hydroplane like a high-speed boat skimming along the surface of the water.

The fatter tire, the new wide-oval jobs, are more dangerous in wet weather at higher speeds. By having more surface of the tire in contact with the road surface, they allow a stagnation pressure of water to build up ahead of the tire. As speed increases the tire literally mounts this cushion of water and loses contact with the road. At 46 miles per hour, the phenomenon of hydroplaning starts. At 80 miles per hour, you are in a full state of hydroplaning.

Here are three good and important rules to follow:

⊛ 1. Reduce speed to stay below your estimated hydroplaning point.

⊛ 2. Keep your tires at the manufacturer's recommended pressure or increase by two to four pounds.

⊛ 3. Do not drive on badly worn tires.

Various state highway departments are conducting experiments on slotting highway surfaces in an effort to reduce hydroplaning in areas where frequent accidents occur. Examples of these locations are intersections, curves and crests of hills. Until these experiments are proven successful and the knowledge acquired is put into use, you should slow down when the roads are wet from rain, dew or frost.

Hydroplaning is not the only wet weather driving hazard. Large quantities of grease and oil are dropped on the pavement by automobiles. When it starts to rain, the oil is floated on the top of the water causing an ice-like condition. This is the most dangerous time to be on the road. To be safe you must reduce your speed so you have time to see a hazard, time to make a decision, and time to carry out your decision to avoid an accident.

You can make your driving safer by slowing down on wet roads.

Here are ten questions that will test your knowledge of safety requirements that you will need under different circumstances. The answers to all of them may be found in AMCR 385-224. How many can you answer without referring to the regulation? The correct answers and references appear on pages 46 and 47 .

1. May a large copper pipe be installed to transfer a liquid containing explosive wastes from the source to a sump?

   Answer and reference:

2. Must waste explosives that have accumulated in a settling basin be removed from it before being destroyed?

   Answer and reference:

3. Since the odors of some war gases may be difficult to detect, how can you be certain the atmosphere is not being contaminated?

   Answer and reference:

4. May extremely large ammunition items be moved by dragging rather than by being lifted onto a wheeled vehicle for transportation?

   Answer and reference:

5. What fire-fighting medium is required to combat a fire in which fuming nitric acid is involved?

   Answer and reference:

6. What are three important sources of harmful radiant energy you may find at a munitions plant or depot?

   Answer and reference:

7. What methods should be used in an attempt to cool a magazine where the inside temperature has exceeded 100°F. for a period of over 24 hours?

   Answer and reference:

8. How close to the nearest magazine may a field office be located?

   Answer and reference:

9. What publication is used in determining hazard classification of ammunition and explosives?

   Answer:

10. Is the heating of ammunition storage magazines ever permitted?

    Answer and reference:

* * * * *

SYSTEMS SAFETY ANALYSIS STUDIES

When they are not busy providing safety instruction for Army Materiel Command personnel, the AMC Safety School instructors are occupied with keeping their own technical knowledge up-to-date. Two of the instructors are shown here at a recent University of Washington, Seattle, conference of "Systems Safety Analysis." They are (left to right) Dock E. Osborn and Charles O. Crozier. The conference was a part of the University of Washington College of Engineering program of Continuing Education for professional engineers.

* * * * *

SAFETY NET DATA SHEET

National Safety Council Data Sheet 608 contains information that should be helpful if you have employees who must work on elevated surfaces. The publication is entitled, "Safety Nets for Construction Projects," and it supersedes Industrial Data Sheet 519, "Manila Safety Nets for Construction Projects."

The new data sheet was prepared by the engineering committee of the construction section, National Safety Council. It discusses the recommended minimum design requirements and usage of safety nets made with manila rope or with rope or webbing (tape) of synthetic fibers, filaments and their combinations.

INSTRUCT AND REINSTRUCT

H. C. Schulz, Safety Inspector
Olin Mathieson Chemical Corporation
Badger Army Ammunition Plant

An alert Safety Inspector discovered the source of a plague of motor vehicle backing accidents. During a routine inspection he observed and stopped a driver backing up to a loading dock in time to avoid an accident.

In this situation the assistant driver was still in the cab. None of the seven workers present at the building had made an attempt to assist the driver in backing his truck between two parked trailers to the loading dock.

Photo 1 was taken immediately to show the existing situation. The parked trailers may be seen on each side of the available space.

Photo 2 was taken to show the proper method of safely backing the truck in the same situation. Two men on the ground provide extra eyes for the driver.

The nine workers present were shown the two photos that illustrated the "right and wrong" ways of backing. They were then reinstructed in their respective responsibilities:

☐ 1. The driver was responsible for seeking aid from other personnel prior to backing.

☐ 2. The assistant driver was required to leave the cab and aid in "spotting".

☐ 3. The fellow workers at the site were obligated to assist the driver in backing up.

○ Although all drivers are instructed on proper backing procedures when granted a license, it is found to be beneficial that they be observed and reinstructed frequently. Workers must be informed and reminded occasionally of their obligation to assist drivers in backing up in their areas.

* * * *

POWER WINDOWS CAN INJURE CHILDREN

▶ The National Highway Safety Bureau has issued a warning to parents against leaving children unattended in cars with power windows. A statement by Dr. William Haddon, Jr., Bureau Director, said:

"Despite extensive publicity given in the past to incidents of strangulation, loss of fingers, and other injuries to children and adults from automobile power windows, tragedies of this kind are being reported to the Bureau in increasing numbers."

● Dr. Haddon made the following suggestions:

★ 1. Children should not be left unattended in cars with power windows.

★ 2. If a car's power windows operate when the ignition is off, the wiring should be adjusted so the windows cannot operate unless the ignition switch is on.

★ 3. If possible, systems should be modified to prevent windows from being closed when the key is off.

★ 4. Cars with power windows should be left completely locked when not in use.

REFERENCE PUBLICATIONS

AR 385-40, Change 1, 22 April 1968
Change 2, 23 August 1968 Change 3, 17 September 1968
Safety, Accident Reporting and Records.

DON'T BE RULE BREAKING ACCIDENT MAKER

Lawrence E. Smith
Safety Officer, Dugway Proving Ground Area
Deseret Test Center

The rule breaker is the accident maker. Commonly agreed-on safe practices develop as a result of the experiences and suggestions of workers, supervisors and safety specialists all over the country. Each of these safe practices has proven to be valuable in helping prevent accidents. Mostly, they are common-sense precautions that all skilled workers naturally take because they prevent injuries and are the best way for doing the job. Practice of these precautions prevent accidents and injuries and save lives, property and monetary damage.

But, as each of us goes about our daily routine we are apt to become a bit careless and to overlook some of our safety precautions. Now and then it becomes necessary to give our jobs a second look and to notice the unnoticed. Listed below are a few tips about specific job hazards.

Any Off-Guard Minute Can Have An Accident In It

1. Make sure the guards and safety devices are in working condition and properly adjusted before you operate a machine. Do not operate it otherwise.

2. Do not tie down or otherwise block out guards and devices like two-hand controls.

3. After machine repair or maintenance always replace the guards immediately upon completion of the job.

Never Be Haphazard With A Fire Hazard

1. Solvents and flammable liquids are major sources of fire. Use as little solvent as is necessary to do the job. Keep solvents in self-closing containers. Do not use solvents around sparks, flames or excessive heat.

2. Good plant housekeeping is the best protection against fire. Dispose of all scrap, wiping rages, newspapers, rubbish and old paint and oil cans.

3. When you weld, cut, solder, or use any type of flame or heat, make sure there are no combustibles in the area.

4. Obey posted no-smoking regulations.

Keep Your Job Safe and You'll Keep Your Job

1. When piling materials, have a safe base. If the floor or ground is not level, use dunnage. Barrels should be chocked at the base.

2. Pile to a safe height. The pile should be steady and at least 18 inches from the sprinkler heads.

3. Lock-in materials. Cross-tie or use dunnage between layers to steady the pile. Piles should be stepped-back to insure stability.

4. Maintain aisle space. Dunnage and ends of material should not protrude beyond the face of the pile.

Don't Short Circuit Your Life

1. All power tools should be grounded.

2. Do not use electrical equipment or activate circuits if your hands are set or if you are standing on wet ground.

3. Do not attempt to repair defective wiring or other electrical equipment. Obtain the services of a qualified electrician.

4. Keep electrical equipment properly oiled, free of grease and dirt.

Sharp Tools and Sharp Wits Add Up To Safety and Efficiency

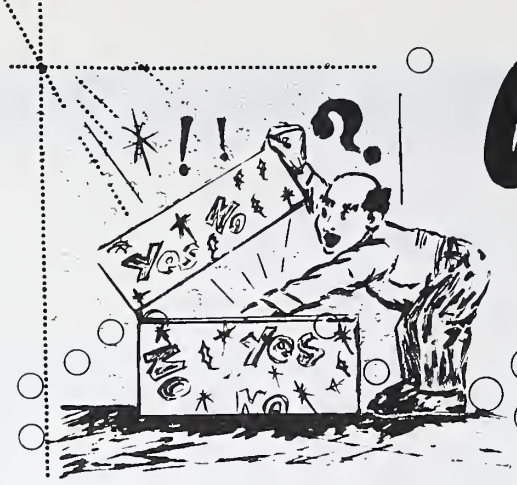
1. Check tools for good condition before using. Turn in defective and dull tools.

2. Use the right size and type tool for the job.

3. Carry tools in a tool box, not in pockets or pants belt. Edged or pointed tools especially should not be carried in your pockets.

Rules like these are simple and easy to obey. Unfortunately many people forget one or more of them every day and are reflected in accident statistics. A surprisingly small amount of time and concentration can keep you and your workers free of many possible injuries.

Mr. Smith was a member of the FY 1968 Safety Career Management Intern Training Class at the U. S. Army Materiel Command Field Safety Agency.



Well, did you know?

Here are the answers to the questions on pages 40 and 41 . All questions were based on information contained in AMCR 385-224. A reference to the pertinent paragraph follows each answer:

1. No. Drains between the source of explosive wastes and the sump shall be troughs with rounded bottoms and removable ventilated covers to facilitate inspection for accumulation of explosives. Reference: Paragraph 517c, AMCR 385-224.

2. Explosive wastes need not be removed from a settling basin if chemical destruction is authorized. This chemical destruction may be done periodically in the settling basin. Reference: Paragraph 2701, AMCR 385-224.

3. The latest vesicant detector paints, detector paper, detector crayon, and a chemical agent detector kit should be used, as described in TM 3-6665 Series manuals, for determining the presence of war gases. Reference: Paragraph 2902, AMCR 385-224.

4. Massive ammunition items, packaged in approved containers designed to permit dragging or towing, may be so moved when necessary during handling for storage and transportation. Reference: Paragraph 2008, AMCR 385-224.

5. Water, used promptly in large volumes, should be used to fight a fire involving fuming nitric acid. In applying the water, care must be taken to prevent splashing or spattering. The area surrounding the fire should be thoroughly wet down to prevent organic material such as brush or grass from igniting. Reference: Paragraph 1231d, AMCR 385-224.

6. Important sources of harmful radiant energy are welding, inspection of materials by means of X-rays or radium, and luminous dial painting. Reference: Paragraph 1124, AMCR 385-224.

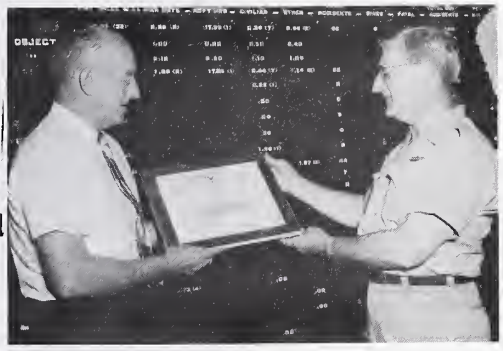
7. The magazine should be cooled by wetting the exterior of the building with water, or by opening the doors and ventilators after sunset and closing them in the morning. Reference: 1805a, AMCR 385-224.

8. A field office must be separated from all magazines by a minimum of magazine distance. If the magazines contain Class 7 materials, the field office shall be separated by intraline distance. Reference: Paragraph 1711d(1), AMCR 385-224.

9. TB 700-2.

10. Storage magazines, in general, should not be provided with heat. Exceptions are made in the case of magazines where heating may be necessary to prevent condensation of moisture, to maintain constant temperature, or for other reasons. Reference: Paragraph 1805b, AMCR 385-224.

MICOM EMPLOYEE COMMENDED FOR VIETNAM SERVICE



Colonel J. N. Jean of the Arsenal Support Operations Directorate is shown presenting Thomas P. Browne, Safety Engineer, U. S. Army Missile Command, a Department of the Army Commendation for outstanding performance rating and sustained superior performance award for the year he served in Vietnam. The citation, signed by General William C. Westmoreland, contained the following statement:

"During this period Mr. Browne, serving as Safety Director for the 1st Logistical Command Support Areas of Saigon, Cam Ranh Bay and Qui Nhon in the II, III and IV tactical zones, and responsible for the multiple port operations safety program, developed a comprehensive safety program, and displayed a professional, thorough knowledge of his job. His detailed analysis, establishment of realistic objectives, and implementation of the safety program under difficult conditions effectively attests to his outstanding ability, and reflects great credit upon himself, the Department of the Army Safety Program and the United States Army, Vietnam."

☆ U.S. GOVERNMENT PRINTING OFFICE : 1968 342-753 (3)

FIRE PREVENTION

IN YOUR HOME

■ Fires in the home claim about six thousand lives a year. Almost one-third of all the fire victims are children.

There is a need for fire safety in the home. A fire extinguisher should be in every home to extinguish or control small fires until help arrives. Because of its non-conductive characteristics, and its effectiveness on all other types of small fires in the home, the best type of fire extinguisher for the home, car, or boat is the dry chemical type. For the home or car the extinguisher should have a capacity of at least $2\frac{1}{2}$ pounds (U. L. rating of 4B:C). The capacity for a boat should be at least 5 pounds (U. L. rating of 8B:C).

IN YOUR BOAT

• All extinguishers should be approved by recognized testing laboratories, and display their labels. Fire extinguishers used on a boat must be of the marine type and U. S. Coast Guard approved.

One dry chemical extinguisher should be carried in each car or boat. A good rule-of-thumb for the home is at least one dry chemical fire extinguisher for each floor of the home, or one in the workshop and one close to the kitchen.

IN YOUR CAR

● Emergency procedures in case of fire in the home are: (1) evacuate all persons to a safe area; (2) call the fire department and give name and correct address; and (3) attempt to extinguish or control the fire until the fire department arrives.

DO YOU HAVE ONE

UNIVERSITY OF FLORIDA
3 1262 09304 9277

FLARE

UNITED STATES ARMY MATERIEL COMMAND

WASHINGTON, D.C. 20315